

Appl. No. 10/521,976
Reply to Office Action Dated 30 September 2005

REMARKS

I. Amendment to the description:

Applicants propose to replace "FIG.3" by "FIG.2" in the paragraph page 8 line 24 to page 9 line 2 (patent application as filed) also identified as paragraph [0043] (patent application as published under No US 2005/0229718). Indeed, this is an obvious typographical error as there is not any Figure 3 in the application and the impeller device referenced 31 is only shown in Figure 2 of the drawings.

II. Claims Rejections under 35 USC 103:

The Examiner rejected claims 12-16 and 18-22 under 35 USC 103(a) as being unpatentable over Stapler (US 4,114,440) in view of Taylor (GB 2 083 210). Further, the Examiner rejected claim 17 under 35 USC 103(a) as being unpatentable over Stapler (US 4,114,440) in view of Taylor (GB 2 083 210) and further in view of Kim et al. (US 2003/0066361).

The invention as claimed in independent claim relates to an impeller with the hub and the blades made of plastic material and molded by trapping a spindle and a magnet in the hub. This provides a light-weight impeller, easy to manufacture without machining and quite suitable for use in a corrosive environment such as hydrocarbon wells.

Stapler teaches a flowmeter including a bladed turbine having a magnet member. This is indeed representative of the prior art as discussed page 3 of the present patent application. In particular, Stapler describes a bladed body 70 in which a ring magnet 72 is mounted in a cavity 74 formed in the central portion of the hub, the magnet being retained in the cavity by means of a spindle portion 76 and an end plug 78, said plug being secured in and sealed in place by ultra-sonic or spin-welding (see col.4 lines 56-64). Further, after the seal weld has been aligned, a clean drilled hole 80 is made through this assembly (see col.5 lines 1-5). It is to be further emphasized that Stapler in Figures 4 and 5, and the corresponding part of the specification column 4 lines 45 to column 5 lines 55 fails to teach a spindle and a magnet trapped in the moulding. In contradistinction with the present invention, the manufacturing of the Stapler's impeller requires machining, welding.

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Taylor teaches a flowmeter including a bladed rotor element mounted in a tubular body. The rotor includes a hub 1 and helical blades 2 made of plastic material. The hub is reflecting electromagnetic radiations (e.g. visible light) and the speed of rotation is measured through optical means. It is to be emphasized that Taylor's bladed rotor element does not include a magnet. Indeed, nothing is trapped into the bladed rotor element of Taylor. Moreover, the hub includes a bore 3 and the molding is carrying out using a core pin to avoid closure of the bore by the plastic material. Thus, Taylor does not describe a bladed rotor element in which the spindle is trapped in the hub.

Thus, it clearly appears that neither Stapler, nor Taylor describe or suggest an impeller with the hub and the blades made of plastic material and molded by trapping a spindle and a magnet in the hub.

It is respectfully submitted that the independent claim would not have been obvious to a person of ordinary skill in the art over the teachings of Stapler and Taylor taken in combination. Indeed, these references taken in combination do not disclose, suggest, teach or motivate the skilled person to obviously derive the features of the independent claim. In contradistinction with the present invention which aims at not requiring supplementary manufacturing step in order to trap the spindle and the magnet in the hub, Stapler teaches to further perform machining and welding step and Taylor teaches to use a second moulding step while not describing any trapped magnet. Hence, a person of ordinary skill in the art would have put aside these references at the time the invention was made when trying to design a structure compatible with the use in corrosive environment and less costly to manufacture than prior art impeller.

Thus, independent claim 12 and dependent claims 13-22 are inventive in view of the hereinbefore cited references taken alone or in combination.

As a conclusion, claim 12 is allowable over the prior art and dependent claims 13-22 are allowable for at least the same reasons.

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The other prior art made of record and not relied upon, namely Williams et al. (US 4,294,262) and Weider (US 6,019,003) both relating to a flowmeter, are not considered as particularly pertinent. Indeed, neither Williams et al., nor Weider disclose, suggest, teach or motivate a person of ordinary skill in the art such that the present invention would have been anticipated or obvious.

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CONCLUSION

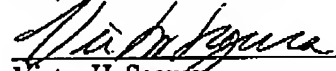
Applicant is of the opinion that this reply is fully responsive to all outstanding issues. Accordingly, the application is now deemed to be in condition for allowance, and notice to that effect is solicited.

This paper is submitted in response to the Office Action mailed 30 September 2005 for which the three months date for response is 30 December 2005. Please apply any charges not covered, or any credits, to Deposit Account 50-2183 (Reference Number 21.1108).

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Respectfully Submitted,


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